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ADMINISTRATION, PERSONNEL AND POLICY GUIDELINES FOR THE CARE OF PEDIATRIC PATIENTS IN THE EMERGENCY DEPARTMENT

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Introduction

Emergency departments (ED) vary in pediatric patient volume, education of staff in caring for pediatric emergencies and available equipment to care for pediatric patients. The Emergency Department Subcommittee of the California Emergency Medical Services (EMS) Authority's Emergency Medical Services for Children (EMSC) Project developed this document to provide minimum and uniform administrative, personnel and policy guidelines for the care of pediatric patients in all emergency departments statewide. These are not practice standards, but are intended to serve as a reference for local EMS agencies to evaluate and upgrade their emergency departments services.

The development of guidelines for EDs that care for pediatric patients began in Los Angeles County. The Los Angeles Committee on Pediatric Emergency Medicine with the cooperation of the Los Angeles County EMS Agency, the Los Angeles Pediatric Society (LAPS) and California Chapter 2 of the American Academy of Pediatrics, in response to concerns about the emergency care of pediatric patients, developed guidelines for EDs that care for pediatric patients. These guidelines included specific requirements for pediatric policies and procedures, education of staff in care of pediatric patients and appropriately sized pediatric equipment to be available in the ED. These first guidelines were called Emergency Department Approved for Pediatrics (EDAP) standards. The first California EMSC Project and the Northern California Pediatric Intensive Care Network played integral roles in the implementation of these standards in many areas of California.

In the creation of the following guidelines this committee reviewed a number of pediatric ED standards currently in use in the state of California, including those from: Fresno, Kings and Madera Counties, Los Angeles County, North Coast EMS region, Northern California (NorCal) EMS region, San Francisco County, San Luis Obispo County, Santa Cruz County and Sierra-Sacramento Valley EMS region. *Administration, Personnel and Policy Guidelines for the Care of Pediatric Patients in the Emergency Department* may be adopted by local EMS systems and incorporated, with or without modification, into the already existing EMS system and ED administrative framework. This document is intended to be used in conjunction with another product of the California EMS Authority's EMSC Project: *Equipment, Supplies, and Medication Guidelines for the Care of Pediatric Patients in the Emergency Department*.

The following guidelines are subdivided into two categories, **basic** and **standby**, based on the definitions of EDs described in the California Code of Regulations, Title 22. All recommendations for basic EDs would apply to comprehensive EDs as well. These guidelines are further divided into two levels: "recommended = R" and "desirable = D".

			BASIC	STANDBY
I.	ADMINISTRATION/COORDINATION			
	A.	Medical Director for the ED	**R**	**R**
	B.	A physician coordinator for pediatric emergency medicine[1]	**R**	**R**
		1. Qualifications:		
		a. Qualified specialist[2] in Pediatrics, Family Medicine or Emergency Medicine	**R**	**D**
		b. Completion of eight hours of CME in topics related to pediatrics every two years	**R**	**R**
		2. Responsibilities:		
		a. Oversight of ED pediatric quality improvement (QI).	**R**	**R**
		b. Liaison with appropriate hospital based pediatric care committees.	**R**	**R**
		c. Liaison with pediatric critical care centers, trauma centers, the local EMS agency, base hospitals, prehospital care providers, and community hospitals.	**R**	**R**
		d. Facilitation of pediatric emergency education for ED physicians.	**R**	**R**

			BASIC	STANDBY
C.	A nursing coordinator for pediatric emergency care[1] (e.g. Pediatric Liaison Nurse (PdLN))		**R**	**R[1]**
	1.	Qualifications:		
		a. At least two years experience in pediatrics or emergency nursing within the previous five years.	**R**	**D**
		b. Completion of PALS, APLS or other equivalent pediatric emergency course.	**R**	**R**
		c. Completion of eight hours of CE in topics related to pediatrics every two years.	**R**	**R**
	2.	Responsibilities:		
		a. Coordination with the pediatric physician coordinator for pediatric QI activities.	**R**	**R**
		b. Facilitation of ED nursing continuing education in pediatrics.	**R**	**R**
		c. Liaison with pediatric critical care centers, trauma centers, the local EMS agency, base hospitals, prehospital care providers, and community hospitals.	**R**	**R**
		d. Liaison with appropriate hospital-based pediatric care committees.	**R**	**R**

			BASIC	STANDBY
II.	PERSONNEL - PHYSICIANS			
	A.	Physician Staffing - ED:		
		1. ED physician on duty 24 hours/day as per Title 22: Ref. 70415.	**R**	**D**
		2. Physician on call and promptly available[3] to ED 24 hours/ day as per Title 22: Ref. 70653.	-	**R**
	B.	Qualifications/Education:		
		1. All physicians staffing the ED should be qualified specialists[2] in Pediatrics, Family Medicine or Emergency Medicine[4].	**R**	**D**
		2. Physicians who are **not** qualified specialists[2] in Emergency Medicine or Pediatric Emergency Medicine should complete Advanced or Pediatric Life Support (PALS or APLS).	**R**	**R**
		3. All physicians should complete eight hours of CME in topics related to pediatrics every two years[5].	**D**	**D**

			BASIC	STANDBY
C.	Backup MD Specialty Services:			
1.	A designated pediatric consultant on call and promptly available to ED 24 hours a day[3].		**R**	**D**
2.	A plan for pediatric patients to receive specialized care.			
	a.	As a minimum this plan should include access to physician specialist's consultation by phone.	**R**	**R**
	b.	The plan should address the availability of specialists to care for pediatric patients, in at least the following specialties: Surgery, Orthopedics, Anesthesiology and Neurosurgery.[6]	**R**	**R**
III.	PERSONNEL - NURSES			
A.	Qualifications/Education:			
1.	At least one ED RN per shift educated in PALS, APLS, or other equivalent pediatric emergency nursing course.		**R**	**D**
2.	At least one RN in-house, on duty, per shift and available to ED should complete PALS, APLS or other equivalent pediatric emergency nursing course.		-	**R**

		BASIC	STANDBY
3.	All RNs regularly assigned to the ED should have four hours of CE in topics related to pediatrics every two years.	**R**	**R**

IV. QUALITY IMPROVEMENT (QI)

		BASIC	STANDBY
A.	A Pediatric QI plan should be established.	**R**	**R**
1.	Components of the plan should include an interface with the prehospital, ED, trauma, in-patient pediatrics, pediatric critical care and hospital-wide QI activities.	**R**	**R**
2.	The pediatric QI plan should include the following:	**R**	**R**
a.	A periodic review of aggregate data of pediatric emergency visits.		
b.	A review of prehospital and ED pediatric patient care to include:		
(1)	deaths		
(2)	transfers		
(3)	child abuse cases		
(4)	cardiopulmonary or respiratory arrests		
(5)	trauma admissions from the ED		
(6)	operating room admissions from the ED		

		BASIC	STANDBY
	(7) ICU admissions from ED (8) selected return visits to the ED		
c.	QI indicators/monitors established with a mechanism to provide for integration of findings from QI audits and critiques into education of ED staff.		
3.	Mechanism to monitor professional education.	**R**	**R**
V.	POLICIES, PROCEDURES AND PROTOCOLS		
A.	Establish policies, procedures or protocols for pediatric emergency patients to include:	**R**	**R**
	(1) medical triage (2) general assessment (3) safety (4) child abuse and neglect (5) consent (6) transfers (7) Do-not-resuscitate (DNR) orders (8) death in the ED (including SIDS) and the care of the grieving family (9) conscious sedation		

		BASIC	STANDBY
B.	A formal relationship should be established with a tertiary care center with a PICU approved by California Children Services (CCS) for transfers and 24 hour phone consultation.	**R**	**R**
C.	A formal relationship should be established with a trauma center for transfers and 24 hour phone consultation.	**R**	**R**
VI.	SUPPORT SERVICES		
A.	Respiratory Care Practitioners		
1.	Staffing:		
a.	At least one in house 24 hours/day.	**R**	**D**
b.	Educated in PALS or APLS.	**D**	**D**
c.	Completion of 4 hours of CE in topics related to pediatrics every 2 years.	**D**	**D**
B.	Radiology		
1.	Staffing:		
a.	Radiologist on call and promptly available[3], 24 hours/day.	**R**	**D**
b.	Technician in house 24 hours/day.	**D**	**D**
c.	Technician on call and promptly available[3], 24 hours/day.	**R**	**R**

			BASIC	STANDBY
2.	CT scan:			
	a.	Technician on call and promptly available[3] 24 hours/day	**R**	**D**
C.	Laboratory			
1.	Staffing:			
	a.	Lab Technician in house 24 hours a day	**R**	**D**
	b.	Lab Technician on call and promptly available[3], 24 hours/day	**-**	**R**
2.	Clinical lab capabilities in-house or access to the following:			
	a.	Chemistry	**R**	**R**
	b.	Hematology	**R**	**R**
	c.	Blood Bank	**R**	**R**
	d.	Blood gas	**R**	**R**
	e.	Microbiology	**R**	**R**
	f.	Toxicology	**R**	**R**
	g.	Drug levels	**R**	**R**
	h.	Micro-capabilities	**R**	**R**
D.	Aeromedical transport plan to include landing procedure and a designated area to be used as a landing site		**R**	**R**

		BASIC	STANDBY
E.	Two-way communication capability with the EMS provider, agency or base hospital	**R**	**R**

Footnotes

1 Personnel guidelines for a physician and a nurse coordinator for pediatric emergency medicine may be met by staff currently assigned other roles in the department and may be shared between EDs.

2 "Qualified specialist" means a physician licensed in California who has: 1) taken special postgraduate medical training, or has met other specified requirements, and 2) has become board certified within six years of qualification for board certification in the corresponding specialty, for those specialties that have board certification and are recognized by the American Board of Medical Specialties.

3 "Promptly available "means being within the emergency department within a period of time that is medically prudent and proportionate to the patient's clinical condition and such that the interval between the arrival of patient to the emergency department and the arrival of the respondent should not have a measurably harmful effect on the course of patient management or outcome.

4 For physicians staffing a General Emergency Department certification in Emergency Medicine is the preferred standard of competence. For physicians staffing Emergency Departments in children's hospitals, certification in Pediatrics or Emergency Medicine, and Pediatric Emergency Medicine is the preferred standard of competence. For all other situations or areas in which physician resources are limited then a physician specialist as described in section ll.B.1. is desirable.

5 May be met by PALS or APLS.

6 May be met by appropriate transfer agreement with local/regional specialized centers.

APPENDIX A

EQUIPMENT, SUPPLIES, AND MEDICATIONS FOR THE CARE OF PEDIATRIC PATIENTS IN THE EMERGENCY DEPARTMENT

The following are equipment, supplies and medications guidelines for the care of pediatric patients in the Emergency Department (ED). Institutions should ensure that the items are located in areas that are easily accessible to staff depending on the institution's particular configuration and needs.

Pediatric equipment, supplies, trays, and medications should be easily accessible, labeled, and logically organized. Staff should be appropriately educated about the locations of various items, and about the process for obtaining items not in the ED. A list of locations of such items should be in a visible location. Furthermore, each ED should have a method of daily verification of proper location and function of equipment.

In the general ED, essential pediatric equipment should be stored on a mobile, designated "pediatric crash cart" or an equivalent housing apparatus. In the pediatric ED, this may not be necessary.

Pediatric equipment, supplies and medications are presented in three categories of availability, these categories allowed a cost-conscious approach:

(1) "CC" - On the pediatric crash cart;
(2) "ED" - In the ED.
(3) "IA" - Immediately available to the ED. **IA** items may be located in the Nursery, Central Supply, or elsewhere in the hospital. While **IA** items may be life-saving in specific cases (although very rarely used), they are not required for stocking in the ED.

EDs may wish to have certain items more accessible, and some items both in the ED and on the crash cart. The following list is not meant to be completely inclusive but rather to include the most commonly needed items for the general ED.

GENERAL EQUIPMENT NEEDS

Pediatric crash cart to store all supplies in an organized manner[1].	**CC**
Medication chart, tape or other system to assure ready access to proper dosage of medication or proper sizing of resuscitation equipment.	**CC**
Patient warming device.	**IA**
Scales for measuring weights of infants and children.	**IA**

MONITORING EQUIPMENT

Blood pressure cuffs (neonatal, infant, child).	**CC**
Blood pressure cuffs (adult-arm and thigh).	**ED**
Doppler ultrasound devices.	**ED**
ECG monitor/defibrillator (5-400 J capacity) with pediatric and adult sized paddles.	**ED**
Hypothermia thermometer.	**ED**
Pulse oximeter.	**ED**

1 In Children's hospitals or hospitals with a separate pediatric emergency treatment area, this recommendation may be met by a crash room.

End tidal CO_2 detector.	**IA**

RESPIRATORY EQUIPMENT AND SUPPLIES

Endotracheal tubes	
(uncuffed: 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5)	**CC**
(cuffed: 6.0, 6.5, 7.0, 7.5, 8.0, 9.0)	**CC**

Respiratory Equipment and Supplies, cont.

Feeding tubes (5,8 Fr)	**CC**
Laryngoscope blades (curved 2,3; straight 0, 1, 2, 3)	**CC**
Laryngoscope handle	**CC**
Lubricant (water soluble)	**CC**
Magill forceps (pediatric and adult)	**CC**
Nasopharyngeal airways (infant, child and adult)	**CC**
Oral airways (sizes 0-5)	**CC**
Stylets for endotracheal tubes (pediatric and adult)	**CC**
Suction catheters (infant, child and adult)	**CC and ED**
Tracheostomy tubes (Shiley tube sizes (0-6)	**CC**
Yankauer suction tips	**CC and ED**

Bag-valve-mask (BVM) device, self-inflating, (pediatric size - 450 ml and adult size - 1000 ml)	**ED**
Clear oxygen masks (standard and non-rebreathing) for an infant, child and adult	**ED**
Masks to fit BVM adaptor (neonatal, infant, child and adult sizes)	**ED**
Nasal cannulae (infant, child and adult)	**ED**
Nasogastric tubes (infant, child and adult)	**ED**

VASCULAR ACCESS SUPPLIES AND EQUIPMENT

Arm boards (infant, child and adult sizes)	**CC**
Butterflies (19-25 gauge)	**CC**
Catheter over the needle (14-24 gauge)	**CC**
Intraosseous needles	**CC**
IV administration sets with calibrated chambers and extension tubing	**CC**
IV tubing (30 inches)	**CC**
Stopcocks	**CC**
Syringes (TB, 3-60 ml)	**CC**

T-connectors	**CC**
Umbilical vein catheters[2]	**CC**
Vascular access supplies utilizing Seldinger technique	**CC**
Infusion devices with ability to regulate rate and volume of infusate	**ED**
IV solutions to include: (micro, macro and blood administration)	
! Isotonic balanced salt solutions (e.g. NS)	**ED**
! $D_5$0.2 NS	**ED**
! $D_5$0.45 NS	**ED**
Needles (18-27 gauge)	**ED**
IV fluid/blood warmer	**IA**

FRACTURE MANAGEMENT DEVICES

Cervical immobilization equipment or devices suitable for pediatric patients[3]	**ED**
Spine board (child and adult)	**ED**

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2 Feeding tubes (size 5 Fr) may be utilized as a UVC catheter.

3 A cervical immobilization device should be a device that can immobilize the neck of an infant, child or adult in a neutral position. It may be towel rolls, or a commercially available specific neck cradling device.

SPECIALIZED PEDIATRIC TRAYS OR KITS

Lumbar puncture tray	**ED**
Peritoneal lavage tray	**ED**
Surgical airway tray	**ED**
Tube thoracostomy tray	
Chest tubes (infant, child and adult)	**ED**
Urinary catheterization kit	
Urinary catheters (infant, child and adult)	**ED**
Vascular cutdown tray	**ED**

MEDICATIONS[4]

Atropine	**CC**
Bretylium	**CC**
Calcium chloride	**CC**
Dextrose	**CC**
Epinephrine (1:1,000 and 1:10,000)	**CC**
Lidocaine	**CC**
Naloxone	**CC**
Sodium bicarbonate	**CC**
Activated charcoal	**ED**
Adenosine	**ED**

[4] The following list of medications represents a minimum inventory of medications to be stocked by emergency departments that care for pediatric patients. This list is not meant to be all inclusive and it is expected that emergency departments will supplement this inventory based on local resources and needs.

Antibiotics	**ED**
Anticonvulsants	**ED**
Antipyretics	**ED**
Benzodiazepines	**ED**
Beta Agonist for inhalation	**ED**
Dexamethasone	**ED**
Diphenhydramine	**ED**
Dopamine	**ED**
Furosemide	**ED**
Glucagon	**ED**
Insulin	**ED**
Ipecac	**ED**
Mannitol	**ED**
Methylprednisolone	**ED**
Morphine sulfate[5]	**ED**
Non-depolarizing neuromuscular blocking agents[6]	**ED**
Phenobarbital	**ED**
Phenytoin	**ED**
Potassium chloride	**ED**
Propranolol	**ED**
Succinylcholine[6]	**ED**
Verapamil	**ED**
Hydralazine	**IA**
Hydrocortisone	**IA**
Isoproterenol	**IA**
Racemic epinephrine for inhalation	**IA**
3% sodium chloride	**IA**

5 Morphine sulfate or other narcotics (e.g. meperidine) would satisfy this recommendation.

6 May be available by the Anesthesia Department only. This recommendation may be satisfied if policies exist that ensure the immediate availability of these medications for emergency intubation of the pediatric patient.

Suggested Readings

1. ACEP Policy Statement: Pediatric equipment guidelines. June, 1990.

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